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ABSTRACT

This paper identifies and discusses inequities in the educational system of Papua New Guinea (PNG). It begins by explaining the use of the Gini coefficient as an equity index, and then discusses inequities and equity trends in four concern areas: geographic distribution of formal education between provinces; educational achievement; distribution of education to individuals; and the economic system. Major findings of the study are as follows: (1) From 1975 to 1982, the distribution of primary and secondary enrollments between provinces became more equitable. (2) The distribution between provinces of Grade 10 examination achievement became more equitable between 1970 and 1980. (3) According to 1966 and 1971 census data, the distribution of education between individuals was very inequitable, mainly because of a large and increasing number of people without any schooling. (4) The distribution of economic activity (measured in 1975-76) between provinces was much less equitable than the distribution of education. (5) Use of a quantitative indicator, such as the Gini coefficient, is necessary to improving the objectivity of assertions about geographical equity. (KH)

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# PNG EDUCATION SYSTEM: EQUITY TRENDS AND COMPARISONS.

by

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Paper presented at the Annual Conference of the Australian and New Zealand Comparative International Education Society (10th, Sydney, NSW, Australia, November 24-26, 1982).

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## Equity Indices

In order to talk sensibly about inequities in an education system, especially if we are to describe trends and make comparisons, a certain amount of quantification becomes necessary. We need to describe:

- Our concept of perfect equity in quantitative terms.
- The extent to which the actual distribution (for example, of the amount of education received or of an educational achievement measure) deviates from the "perfect" state. This deviation is measured by means of an equity index, or perhaps we should more correctly say an inequity index.

The research literature of economics and the social sciences - more especially the former - contains a bewildering variety of equity indices. In the present paper, the Gini coefficient of concentration will be the index most used, together with its associated Lorenz curve. For a general review of equity indices, reference should be made to Meade (1976:112-135) or Sen (1973:24-46). For a complete mathematical description of the Gini coefficient in terms of distribution theory, reference should be made to Kendall and Stuart (1977:47-50). For information on the practical aspects of calculating a Gini coefficient, reference should be made to Woytinsky (1948:251-255).

Briefly the Gini coefficient is a unit-free (i.e. independent of the units in which the base data are measured) index with values ranging :

- from zero corresponding to the distribution which accords with our concept of perfect equity
- to unity corresponding to the distribution yielding maximum possible inequity.

There is no such thing as a unique concept of perfect equity. Our particular concept of the distribution corresponding to perfect equity will depend on how we define three components of the distribution.

1. The cells over which the distribution is made. For example the cells could be groups of people or individual persons or geographical regions. In the present paper the provinces of Papua New Guinea are frequently used as cells.
2. The resource variable, in other words the thing of value which is being distributed. For example it could be the amount of education received or educational funding. In the present paper the number of school enrolments is one of the resource variables which is used. (The bulk of published material making use of the Gini coefficient is in the field of econometrics where the distribution of personal income or wealth is analysed).
3. The weighting of each cell. It is only in special cases that cells are equally weighted, in which case perfect equity would correspond to each cell being allotted an equal share of the resource. In general cells are weighted according to a criterion variable, and perfect equity corresponds to each cell being allotted a share of the resource in proportion to its share of the criterion. For example, cells are frequently weighted according to the population of people in them; thus perfect equity corresponds to each cell having the same per capita value of the resource. In the present paper, where we frequently use school enrolments as the resource, we use school age population as the criterion variable for weighting each province: thus perfect equity corresponds to each province having the same enrolment ratio.

The maximum possible inequity occurs when the entire resource is placed in one cell. The value of the Gini coefficient is then unity. This is perhaps an oversimplified description of the state of maximum inequity, as it is modified by considerations of cell size and whether or

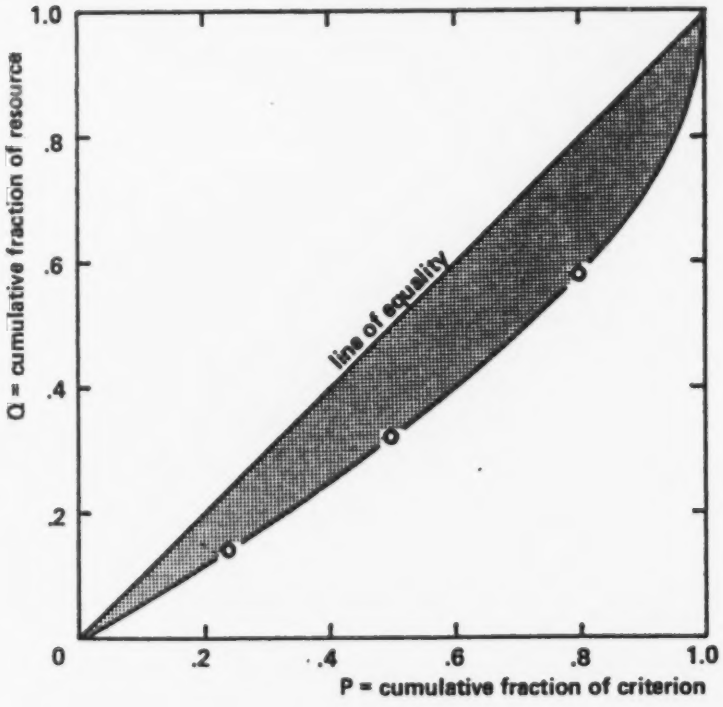
not it is possible to saturate a cell with a finite amount of the resource.

To understand and be able to compute a Gini coefficient it is necessary to know something about the associated Lorenz curve, which can be drawn by following four steps.

1. Calculate the ratio resource/criterion for each cell and then sequence the cells from low to high values of this ratio, that is from disadvantaged to advantaged cells. For example from the province with the lowest enrolment ratio to that with the highest.
2. For each cell calculate the cumulative fraction of the resource: Q.
   For example for the sixth province, Q would be the fraction of the national enrolment in the sixth province plus the fractions for the five preceding (less advantaged) provinces.
3. For each cell calculate the cumulative fraction of the criterion: P.
4. Plot a graph of Q against P.

Figure 1 is an example of a Lorenz curve plotted for a fictitious distribution over four cells, which we can use for illustrative purposes.

FIGURE 1
LORENZ CURVE: FICTITIOUS DATA




Some of the properties of a Lorenz curve are illustrated by Figure 1.

1. The line of equality is always drawn to represent the distribution of perfect equity. Each cell has the same fraction of the resource as it has of the criterion. The cumulative fractions are therefore always equal. P always equals Q.
2. The actual distribution deviates below the line of equality as P is always greater than Q, because of the way in which the cells are sequenced.
3. The slope of the Lorenz curve is monotonically increasing away from the origin, once again because of the sequencing of the cells.
4. As P and Q are cumulative fractions, they have maximum values of unity. Always Q=1 when P=1 for the last cell. The curve starts at Q=0 and P=0. Our example of a four cell distribution therefore shows three data points.
5. At some point on a continuous Lorenz curve the slope must equal the slope of the line of

equality. This occurs for the cell(s) for which (on a theoretical continuum of cells) the resource/criterion value coincides with the mean value for all cells.

6. Greater degrees of inequity show up on the Lorenz curve as lower values of slope near the origin and/or higher values of slope as the curve approaches P=Q=1. In other words greater degrees of inequity result in larger deviations by the Lorenz curve from the line of equality.
7. Maximum inequity, with the entire resource located in one cell, corresponds to a Lorenz curve which (in a theoretical continuum of cells) proceeds from P=Q=0 to P=1,Q=0 to P=Q=1.
8. A Lorenz curve requires that the basic measurements, from which P and Q are derived, are made on ratio scales with naturally occurring zeros.
9. By reading the values of Q corresponding to values of P, the Lorenz curve enables statements of the following kinds to be made:
   40% of the population has only 25% of the resource,
   10% of the population has as much as 30% of the resource.

Statements such as those made in point 9 above are often used as indicators of the inequity in the distribution. However, only one point on the Lorenz curve, that is only one part of the distribution, has been considered in each statement. A good indicator of the overall inequity is the area between the Lorenz curve and the line of equality. This is known as the area of concentration and is shaded in Figure 1. The area of concentration has a maximum value of 0.5 (in which case the entire area below the line of equality would be shaded). The Gini coefficient is therefore defined as:

$$G = 2 \times \text{area of concentration.}$$

G functions as a summary indicator of the inequity in the distribution of a resource between cells and takes into account the possibility that the cells may not all have equal weight. For many purposes G is somewhat too parsimonious in its description of inequity, but in combination with a fully labelled Lorenz curve G can give a fairly concise and complete description of the inequities in a distribution.

The foregoing is a very brief outline of how the Gini coefficient is defined and some of its properties. This should be enough to make clear the methodology in the present paper. However, many important considerations are missing from the outline. These omissions include computational details and the sometimes subtle dangers, despite its unit-free nature, of using G to compare two distributions of very different natures.

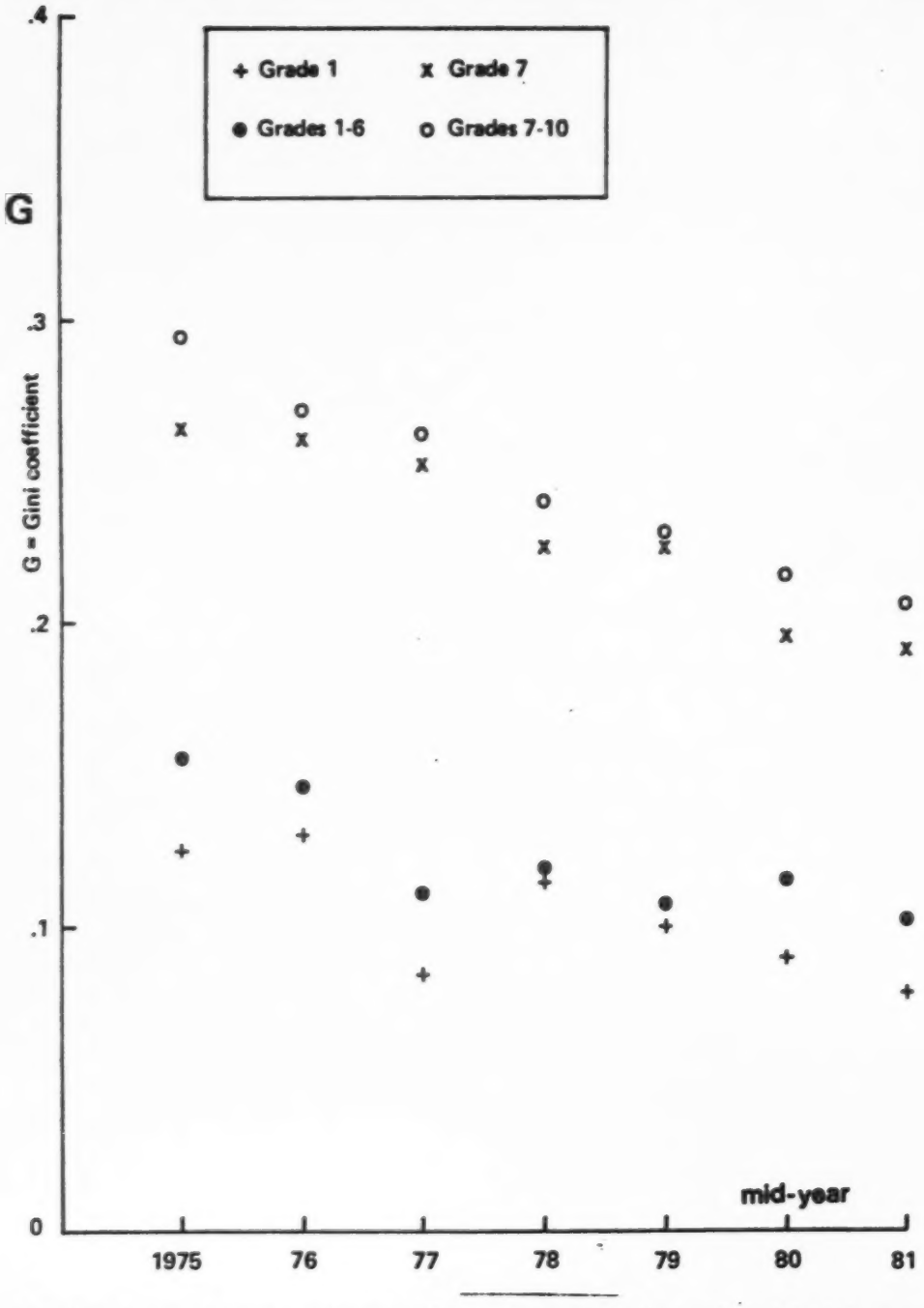
## Monitoring Inequities between Provinces in PNG

There are well documented historical reasons why the geographical distribution of formal education provision in Papua New Guinea is uneven (Smith, 1975:11-25). These include the concentration of early missionary activities; the time taken for the colonial administration to spread its influence from established administrative centres on the coast to the unexplored interior highlands; the different policies under different colonial regimes for Papua and for New Guinea. Similar patterns of uneven distribution are not uncommon in underdeveloped countries particularly those with a colonial/missionary history; the patterns tend to persist even though the degree of unevenness may be reduced.

PNG policy makers and educational planners have been very aware of the uneven geographical distribution of education and have formulated policies in terms of equalisation between provinces to spread educational provision more evenly (PNG Chief Minister's Office,1973: point 2; PNG Ministry of Education, 1975: 25,37). As we are dealing with 20 provinces having very different school age populations, ranging from about 6000 to 60000 in the case of primary populations, G is a most suitable index with which to monitor equity trends, because it can summarise the degree of inequity between several cells of different weights. Figure 2 shows the equity trends year by year from 1975 to 1981.

FIGURE 2

DECLINING INEQUITIES IN ENROLMENTS BETWEEN PROVINCES IN PNG




1975 has been chosen as the starting point partly to begin with data reported for the current 20 province structure and partly to cover the five year education plan period 1976 - 80. Figure 2 shows a steady trend towards greater equity in keeping with trends reported for an earlier overlapping period (Sheret:1979). There is some evidence to suggest that the trend may be levelling off in the primary sector. Equity was always greater at the primary level than the secondary level, perhaps to be expected because of primary's longer history and greater enrolments. Inspection of the raw data from each province, as opposed to using a summary indicator such as G, hardly reveals these trends towards greater equity. Table 1 contains correlation coefficients for the provincial enrolment ratios which form the data base for Figure 1. The strong positive correlations show that the provinces of concentration remained largely the same over time and from one level to another; in other words the relative placement of provinces on a scale from low to high enrolment ratio remained much the same.

**TABLE 1**
**CORRELATION COEFFICIENTS FOR BASE DATA OF FIGURE 2**

| | $r_{1975,80}$ |
|---|---|
| Grade 1 | .72 |
| Grades 1-6 | .92 |
| Grade 7 | .92 |
| Grades 7-10 | .91 |

| Grades | (1-6) | 7 | (7-10) |
|---|---|---|---|
| Grade 1 | .76 | .77 | .82 |
| Grades 1-6 | | .81 | .83 |
| Grade 7 | | | .99 |
| Above coefficients all refer to 1980 data | | | |

So that we can examine equity trends in conjunction with expansion trends for the education system as a whole, Figure 3 shows the national enrolment ratios over the period 1975 -81 for the same four levels of enrolment as in Figure 2.

**FIGURE 3**
**NATIONAL ENROLMENT RATIOS**

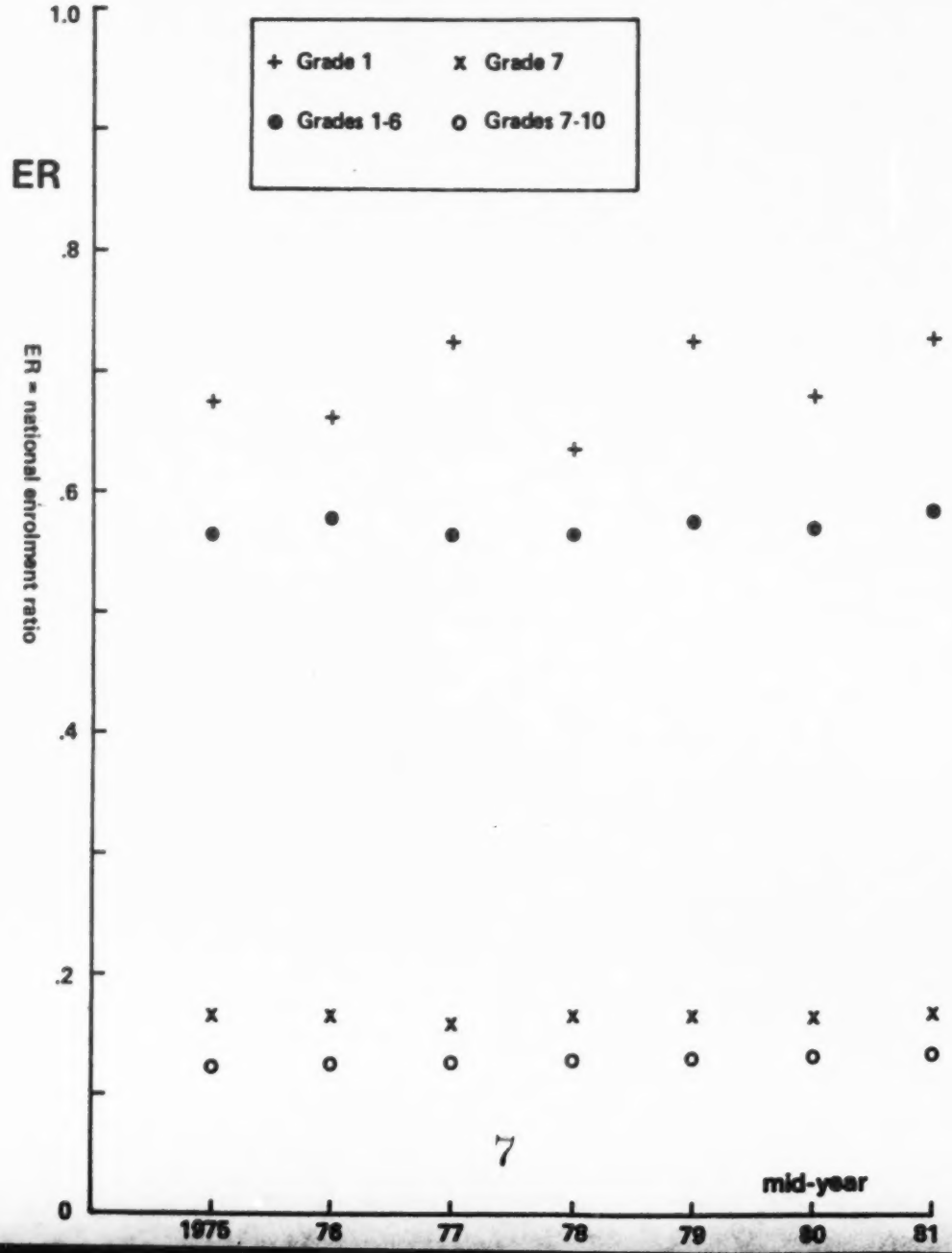


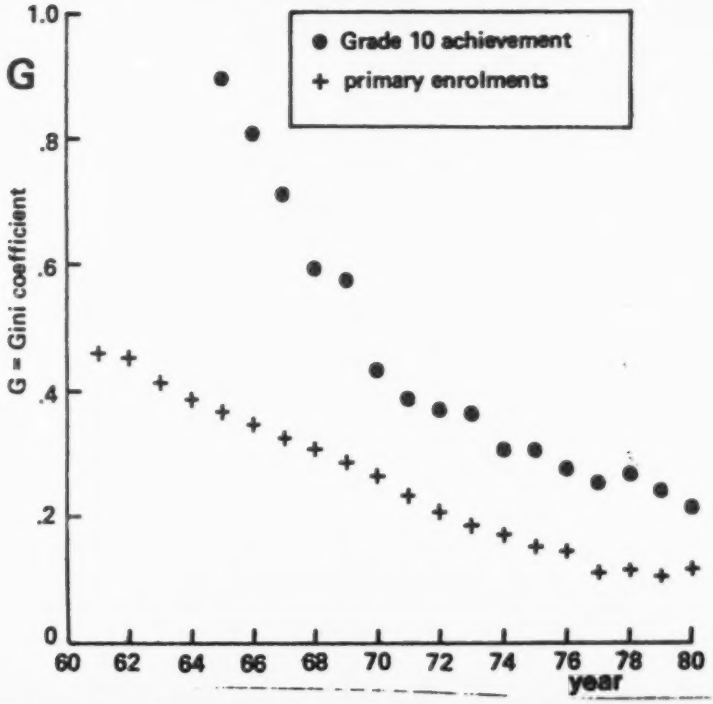
Figure 3 shows that, apart from small fluctuations up and down, the education system neither expanded nor contracted, or more correctly that increases in enrolments only just kept up with increases in school population. (The only exception, which is difficult to see on the scale of Figure 3, is the Grade 7-10 enrolment ratio which increased very slowly but steadily from 12.3% to 13.4%). In such a situation of static national enrolment ratio and decreasing G, the mathematical nature of G is such that enrolment ratios must increase for provinces of low enrolment ratio and decrease for provinces of high enrolment ratio, a trend which can be revealed from the raw data only by very close inspection (Sheret: 1980,24-26).

**Equity Trends in Educational Achievement**

Improved equity in educational provision is all very well, but we might ask ourselves whether it is accompanied by or leads to improved equity in educational achievement. To answer this question, equity trends in performance at the Grade 10 school certificate examination are analysed. The resource variable used for educational achievement is the number of credits and distinctions obtained in the core subjects of English, Mathematics and Science for each province. The criterion for weighting each province is the 16 years old population. The selection of this criterion has important conceptual implications; we are reflecting on the overall educational "reward" accruing to a province at the end of the primary and secondary cycles; we are not reflecting upon the quality of secondary schooling in the province which we might be doing if we used Grade 10 enrolments as our criterion population (Tuppen & Deutrom: 1980). The equity trend in achievement is compared to the trend in educational provision at the beginning of the primary and secondary cycles. Ideally we should consider Grade 1 enrolments, but in order to get data for earlier years, it was necessary to use consolidated primary enrolments. Figure 4 shows the result of this analysis.

FIGURE 4

EQUITY TRENDS BETWEEN PROVINCES
FOR PRIMARY ENROLMENTS AND GRADE 10 EXAMINATION ACHIEVEMENTS




The earlier years, up to about 1970, do not give very useful data to show equity trends in achievement: firstly, because of the low numbers involved; secondly because there were then several provinces without Grade 10 level schools with the result that many schools had catchment areas extending over more than one province. Figure 4 shows clearly that equity both in terms of primary enrolments and Grade 10 achievement improved steadily over the period. From 1970 the trend lines were parallel to each other with about a seven year time lag

for the equity level in achievement to catch up on primary enrolment. This is exactly the sort of pattern to be expected if one hypothesised that increased primary enrolments should have a causal influence on Grade 10 achievement. The implication for educational policy is that where the long term objective is to equalise educational reward between provinces at the end of the primary and secondary cycles, a simple and effective measure is to make sure that more children get into primary school in the disadvantaged provinces, despite the wide range of quality factors that intervene between Grade 1 entry and Grade 10 graduation.

Table 2 uses the provincial data of Figure 4, enrolment ratios and Grade 10 achievement per capita, to give several correlation coefficients. The positive values show the extent to which provinces of concentration remained the same between enrolments and achievement and also in achievement over a period of time.

TABLE 2
CORRELATION COEFFICIENTS FOR BASE DATA OF FIGURE 4

| Enrolment \ Achievement | 1972 | 1976 | 1980 |
|---|---|---|---|
| 1965 | .71 | .56 | .56 |
| 1972 | .68 | .70 | .66 |
| 1976 | .29 | .42 | .42 |
| 1980 | .45 | .62 | .66 |

| Achievement | 1972 | 1976 | 1980 |
|---|---|---|---|
| 1968 | .88 | .70 | .72 |
| 1972 | | .71 | .69 |
| 1976 | | | .74 |

Thus, for example, the correlation of 1972 primary enrolment ratio with 1980 Grade 10 achievement per 16 year old person is 0.66.

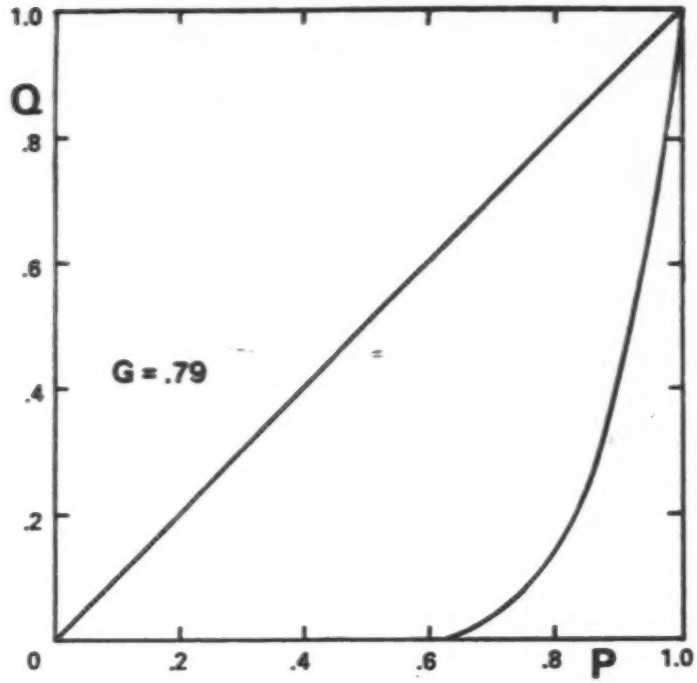
**Educational Inequities between Individuals**

Knowledge of provincial enrolment ratios and inequities between provinces is important for educational planners and policy makers. It is usually of minor importance for individuals trying to get into school. To illustrate this with a fictitious example, let us consider child X from province A, enrolment ratio 60%, and child Y from province B, enrolment ratio 40%. Child X on the basis of provincial membership alone has a 60% probability of attending school; child Y has a 40 % probability. But this information has little relevance to child X if he (or more likely she) cannot get a school place (his "enrolment ratio" is 0% - population 1, enrolment 0) and equally little relevance to child Y if he is securely enrolled in school (his "enrolment ratio" is 100%). The individual inequity in our example is reversed from the provincial inequity and is very much greater.

The Gini coefficient can be used to measure inequity between individuals for the nation as a whole. For PNG, using 1966 and 1971 census data, estimates can be made of the number of people having a certain number of years of formal schooling. G is then calculated, on a 16 cell structure, each cell being defined by the resource per capita value itself, i.e. the number of years of schooling per person in the cell. The whole population of PNG is used, excluding children less than 7 years old who would not be expected to have received any formal schooling. Figure 5 shows the resulting Lorenz curve for 1966 data.

**FIGURE 5**

**LORENZ CURVE: YEARS OF SCHOOLING BETWEEN INDIVIDUALS**




Q = cumulative fraction of national total years of schooling

P = cumulative fraction of individuals sequenced by years of schooling per capita

NOTE: The Lorenz curve does not start to rise from the P axis (Q = 0) until P = .63, because 63% of the population in fact had no schooling

What is very obvious from Figure 5 is that the overall inequity between individuals was very much greater than the inequity between provinces. This difference was probably much greater than is indicated by Figure 5 since years of schooling is a poor measure of "amount " of education received because of :

(a) the very low educational and economic value of less than 2 years schooling which is what a large number of people in the distribution have;

(b) the high cost (and the high private rate of return to the recipients) for the post primary years of formal education.

It is interesting to note that the above disparity - distribution between provinces compared to distribution between individuals - can be considered not to clash with PNG's broad policy aims. Jackson (1980: 183) has noted that a careful reading of point 2 of the eight point plan (PNG Chief Minister's Office, 1973) reveals two separate intentions with regard to improving equity (i) "equalisation of incomes among people" and (ii) "equalisation of services among different areas of the country". In other words there is not only consideration of two different resource variables, income and services, but also of two different cell definitions, people and areas of the country. However, official interpretation regarding these distinctions has not always been very exact. One official explanation (PNG Office of Information,1975) of point 2 illustrates this lack of exact interpretation: "the Government wants to make sure that everyone receives a fair share of the services it provides .....money received from income tax ....will be used to provide services for all the people in the country. These services include schools ....from which everyone will benefit." (Underlined emphases are the author's).

A Lorenz curve for 1971 census data can also be drawn for comparison to Figure 5. In fact it would coincide, within the resolving power of the graph, with the Lorenz curve of Figure 5; the G values for 1966 and 1971 were the same, namely 0.79. (At the time of writing this paper the census data for 1980 have unfortunately not yet been published). Is it in fact

the case that, despite the period 1966 to 1971 being one of educational expansion, there was no improvement in equity between individuals? The simple answer is : yes, there was no improvement insofar as the Gini coefficients are measures of overall inequity. What the Gini coefficients do not reveal are the very real gains made by the education system. For example, the first three lines of data in Table 3 show very real gains.

TABLE 3
NUMBERS OF PERSONS AT DIFFERENT LEVELS OF SCHOOLING

| Census year | 1966 | 1971 |
|---|---|---|
| No. of persons with completed Grade 6 | 14286 | 60636 |
| No. of persons with completed Grade 10 | 72 | 5045 |
| No. of persons with completed university | 2 | 51 |
| No. of persons with no schooling | 1.03 million | 1.15 million |

However, these gains were swamped by the large and increasing number of persons with no formal schooling, as shown on line four of Table 3.

The implication for policy makers is that, if inequities between individuals are to be reduced, the large number of persons with no education will have to be reduced. This can be achieved over the long term in two ways:

(i) greater relative spending on primary education to increase primary enrolments and retention,

(ii) reaching adults who have had no schooling, for example by substantive literacy courses.

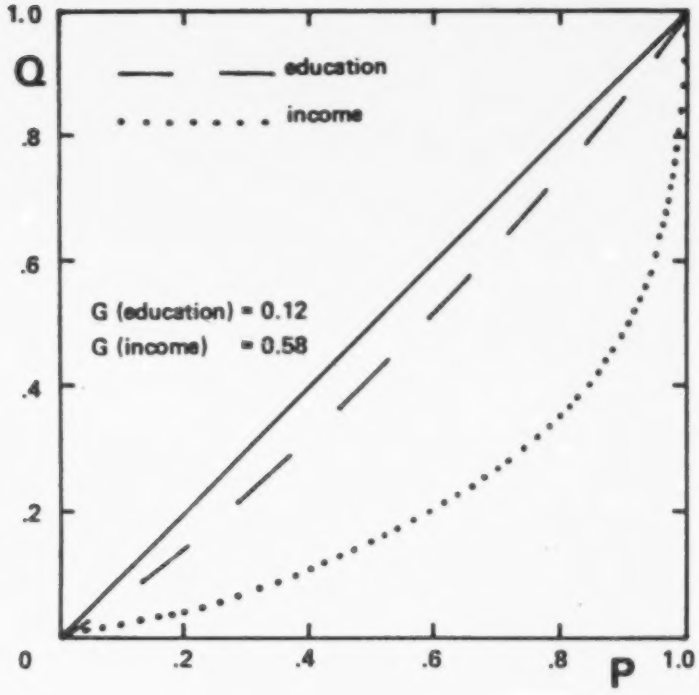
Reduction of the overall inequities of educational provision between individuals cannot be achieved by greater relative spending on post primary formal education.

**Inequities in the Economic System**

In the same way that we have quantified inequities in educational provision and achievement between provinces, can we quantify inequities in economic activity? This turns out to be a very difficult exercise because of lack of data. Whereas indicators for economic activity in PNG as a whole do exist in abundance, there is very little breakdown into provincial economic indicators. This same difficulty has been encountered by other research workers (Jackson: 1980).

The taxation statistics for 1975/76 gave for the first (and only) time some breakdown of data by province. It is possible from this data to make estimates of the total taxable income from individuals (wage and salary earners, provisional taxpayers and single owner business proprietors) for each province. Taxable income is hardly an indicator of overall economic activity because of the large numbers of people in the subsistence sector. However, we can take taxable income as a reasonable indicator - probably the best available which is disaggregated by province - of activity in the modern exchange sector of the economy. Figure 6 shows the Lorenz curve for taxable income distribution between provinces. For comparison it also shows the Lorenz curve for the combined distribution of primary and secondary school places between provinces for 1977.

FIGURE 6
LORENZ CURVES: SCHOOL PLACES AND TAXABLE INCOME BY PROVINCE




What is clear from Figure 6 is that the distribution of economic activity in the modern exchange sector was much less equitable than the distribution of provision of modern education. The correlation between taxable income and educational provision is very weak, .07, showing that the provinces of concentration on one variable were not the same as those on the other variable.

To derive the Lorenz curve of Figure 6 for combined primary and secondary enrolments, the 7 - 16 years old population was used as the criterion for weighting. Thus our concept of perfect equity was that each province should have an equal number of enrolments per capita; we might call this a democratic concept. It is an interesting exercise to replace the criterion variable of 7 - 16 years old population with the resource variable of taxable income already used in Figure 6. Thus our new concept of perfect equity is that each province should have an equal number of enrolment per kina (PNG monetary unit) contributing to central revenue; we might call this a free market concept.* Lorenz curves to measure the deviations from these two contrasting concepts of perfect equity are drawn in Figure 7.

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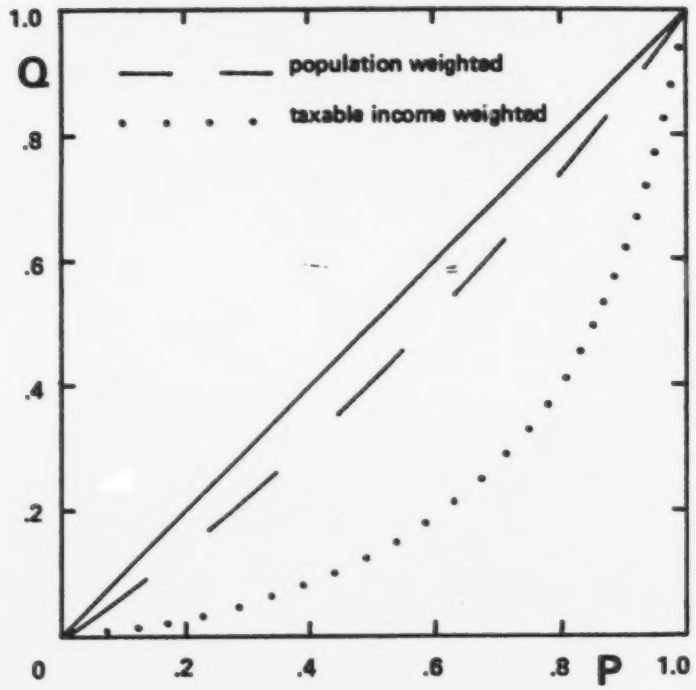
* Because of the progressive tax structure, the more affluent provinces with more taxpayers in the higher income brackets will contribute proportionately more tax than is indicated by taxable income. Our estimate of inequity on our free market concept will therefore be somewhat lower than it would be if we were able to use the actual amount of tax contributed.

FIGURE 7

LORENZ CURVES: SCHOOL PLACES BY PROVINCE
WEIGHTED BY POPULATION AND WEIGHTED BY TAXABLE INCOME




G (weighted by school age population) = 0.12
G (weighted by taxable income) = 0.55

Figure 7 illustrates very clearly that school places are distributed between provinces in a manner corresponding closely to a democratic concept of equity; this same distribution deviates quite far from a free market concept of equity. The correlation between the two differently weighted distributions is very weak and is even slightly negative: -.15.

As most school funding comes from central sources, Figures 6 and 7 show how the education system acts as a very effective means of transferring, through educational funding, wealth from the more affluent to the poorer provinces.

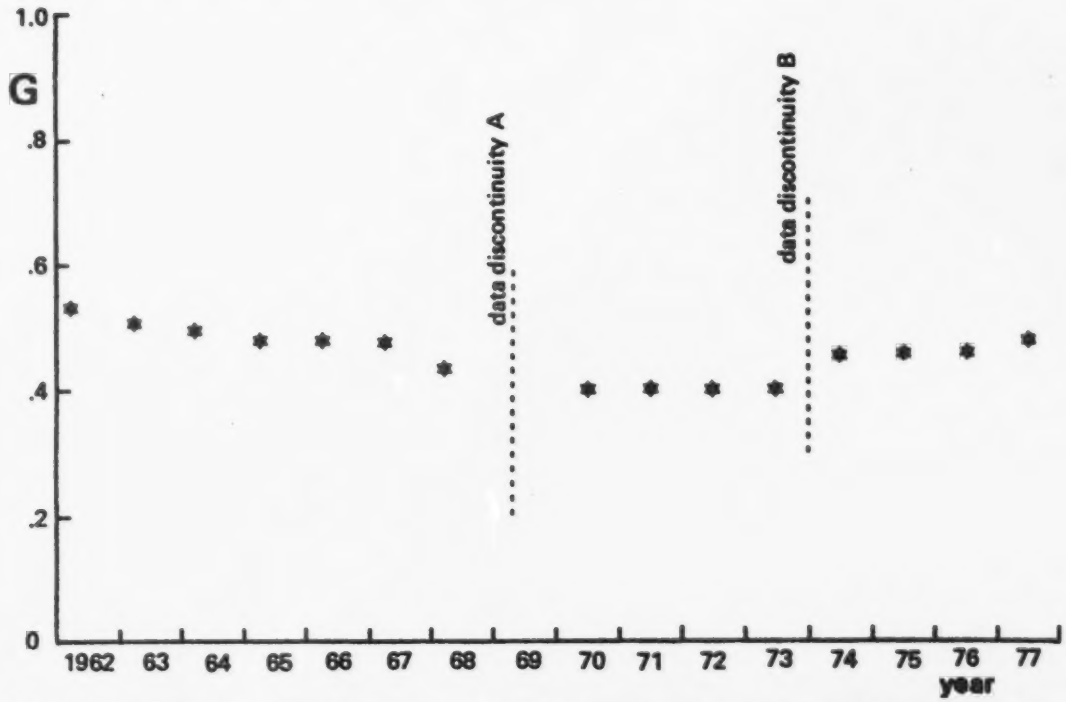
**Equity Trends in the Economic System**

The strong trends towards greater equity in the provincial distribution of education, Figures 2 and 4, illustrate the spatial diffusion of education, as the historical regions of concentration become less concentrated. An interesting question for development planners is: has this educational diffusion been accompanied by a diffusion of economic activity? An argument often put forward for increased levels of spending to expand and/or spread school enrolments is that a more educated populace will somehow lead to greater and more widespread economic activity. A counterargument is that a more educated populace simply leads to the creation of more jobs in the already urbanised areas and a further concentration of economic activity.

To try to answer the above question, we can use the Gini coefficient in the same way that we have used it for education to see if there have been any similar trends towards greater equity in economic activity between provinces. The problem in making such a comparison is one of insufficient or inadequate economic data. Economic data broken down by province are

difficult enough to find. To get such data extending back over a sufficient period of time is even more difficult. These problems are described in detail in a recent paper by Jackson (1980). The PNG Department of Labour has published for some years the number of wage and salary earners in each province. However imperfect an indicator of economic activity this is, it does cover a substantial time period from 1962 to 1977. Figure 8 shows the Gini coefficient with the 16 - 64 years old population as the criterion weighting.

FIGURE 8
GINI COEFFICIENTS FOR DISTRIBUTION
OF WAGE AND SALARY EARNERS BY PROVINCE




Data discontinuity A: 1969 data missing and shift of population criterion from 1966 to 1971 census data.
Data discontinuity B: national government employees excluded from 1974 onwards.

Bearing in mind the limitations of number of wage and salary earners as a resource variable, Figure 8 is evidence that the spatial diffusion of education was not accompanied by a similar diffusion of economic activity. There are many strong arguments for policies aimed at further equalisation in educational provision between provinces - a sense of intrinsic fairness being one of the strongest - but it obviously cannot be argued that improved equity in education between provinces has lead to improved equity in economic activity. The two events would appear to be unrelated.

## Conclusions

1. In the PNG education system from 1975 to 1981 the distribution of primary and secondary enrolments between provinces became more equitable. The evidence for this is based on quantitative analysis and is shown by declining values of the Gini coefficient in Figure 2. There is some indication that in the primary sector the trend has been levelling out from about 1977.

2. The distribution between provinces of Grade 10 examination achievement became more equitable over the period 1970 to 1980, paralleling the equity trend in primary enrolment (see Figure 4). The seven year lag of achievement trends behind enrolment trends is consistent with the hypothesis that enrolment levels at the beginning of the primary and secondary cycle have a strong causal influence on provincial educational achievement at the end of the cycle. Thus, despite the many factors that intervene between Grade 1 entry and Grade 10 graduation, policies to improve equity in primary enrolments are likely to have a strong influence in improving equity in Grade 10 achievement.

3. The distribution of education between individuals was very inequitable according to 1966 and 1971 census data (see Figure 5), much more so than the distribution between provinces. The main reason for this was the large and increasing number of people without any schooling. It is arguable that educational policy in PNG has been overconcerned with inequities in educational provision between provinces while such large inequities exist between individuals. Improving the equity between individuals can be achieved through expansion of the primary sector or a scheme to bring a substantial amount of education to uneducated adults. Additional resources devoted to post-primary education, which may be desirable because of other considerations, will not significantly change the large degree of inequity between individuals in the country as a whole.

4. The distribution of economic activity in the modern exchange sector (as measured by taxable income in 1975/76) between provinces was much more inequitable than the distribution of education (see Figure 6).

5. Comparing the distribution of education between provinces on two different definitions of equity, per capita and per kina of taxable income, we find that the distribution of education in PNG corresponded more closely to a per capita, that is a democratic as opposed to a free market, definition of equity (see Figure 7).

6. There has been no evidence for equity trends in the distribution of economic activity between provinces similar to the trends found in the distribution of education (see Figure 8). This suggests that there was no relationship between the spatial diffusion of education and that of economic activity.

7. Where the distribution of education over several cells (such as provinces) of different weights is being monitored from the point of view of equity, the Gini coefficient of concentration is a very useful summary indicator. In PNG, where contradictory assertions are frequently made regarding equity in education, the use of a quantitative indicator is a necessary step towards improving the objectivity of such assertions. This is particularly true in view of the fears expressed that decentralisation policies inititiated in 1977 may eventually have the effect of increasing the degree of inequity between provinces.

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